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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	: 09/874,371	Confirmation No.	: 2725
First Named Inventor	: Andreas LEUPOLZ		
Filed	: June 6, 2001		
TC/A.U.	: 3643		
Examiner	: Timothy Collins		
Docket No.	: 101280.49983US		
Customer No.	: 23911		
Title	: Arrangement for Improving The Thermal Comfort in Passenger Planes		

SUBSTITUTE APPEAL BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The substitute Appeal Brief is responsive to the Notice of Non-Compliant Brief of March 8, 2005 and complies with the requirement of 37 C.F.R. §41.37.

REAL PARTY IN INTEREST

Dornier GmbH LHG, D-88039 Friedrichshafen, FED REP, Germany

RELATED APPEALS AND INTERFERENCES

There are no known related cases which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal.

STATUS OF CLAIMS

The application contains claims 1-12 and 15-22 with claims 13-14 having been previously cancelled.

STATUS OF AMENDMENTS

Subsequent to the Final Patent Office Action of June 22, 2004 a Response which did not make any amendments to the claims was submitted on September 22, 2004. The Advisory Action of October 8, 2004 indicated that the response did not place the application in condition for allowance.

SUMMARY OF CLAIMED SUBJECT MATTER

Appellant's invention, as defined by independent claims 1, 18 and 20 concerns an improved passenger compartment of an airplane 6 (specification page 10, line 21) wherein a coating 3 (specification page 10, line 19, Figure 2) is provided on the interior surface 1 (specification page 10, lines 1 and 2, Figures 1 and 2) of a cabin in order to reflect heat (radiation) from a passenger. More particularly, the coating material which is applied to the interior surface of the airplane has a low thermal emission coefficient to reflect heat from the inside environment. This environment particularly includes the passenger 2 (specification page 10, lines 1 and 2, Figures 1 and 2), so that the heat from the passenger is reflected back to the passenger with the result that the coated surface does not emit radiation primarily as a function of its surface temperature.

Each of independent claims 1, 18 and 20 recite that the coating has a thermal emission coefficient no greater approximately 0.5 (specification page 8, lines 4-8) and that the effect of this coating is to improve radiation exchange with a passenger in the aircraft cabin when compared with an uncoated interior surface.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection before the Board of Appeals and Interferences are (1) whether claims 1-3, 15, 17, 18 and 20 have been rejected under 35 USC §102 as anticipated by or, in the alternative, under 35 USC §103 as obvious over U.S. Patent No. 6,391,400 to Russell et al.; (2) dependent claims 4-6 are rejected under 35 USC §103 as unpatentable over Russell and Allemand U.S. Patent No.

6,178,043; (3) claim 8 is rejected under 35 USC §103 over Russell and Coleman U.S. Patent No. 4,731,289; (4) claims 7, 16 and 21 are rejected over the combination of Russell and U.S. Patent No. 5,976,702; (5) claims 8 and 9 are rejected over the combination of Russell and Allemand; and (6) claims 10-12 are rejected under 35 USC §103 over the combination of Russell and Rensch U.S. Patent No. 6,092,915.

ARGUMENT

Claims 1, 18 and 20

The reference to Russell '400 concerns a thermal control film or glazing with coated polymer sheets used as transparent heat reflective thermal control films. These sheets transmit visible radiation and provide high reflectance at one or more radiation wavelengths which are near infrared (heat reflective). Referring to the statement of the rejection of independent claims 1, 18 and 20, Russell is cited for disclosing a heat reflective coating with a low thermal emission coefficient of less than 0.5 referring to col. 2, lines 11-24 and particularly lines 20-24. This portion of Russell is cited by the Examiner for illustrating improved radiation exchange "at least for the reasons that is made of the same materials as the Applicant's and is coated in the same way." Additionally, col. 2, lines 5-12 of Russell have been cited for teaching that the glass is a single pane of glass or glazing with a thermal control film adhered to its face. From these disclosures, the Examiner concludes that it would have been obvious to have applied the film to the interior of the glass because the motivation would have been to place the film on the side which is the most effective so that it would have been provided for stopping emission and trapping heat.

Applicants respectfully refer to col. 6, lines 56-60 of Russell for an indication that there is a substrate with at least one face and a thermal control film on that face wherein the control film is used in vehicular glazing and allows the transmittance through the film of a majority of infrared radiation, incident upon the control film, in the 7 to 20 micron wavelength region that is emitted by

interior materials in the enclosed space.

Appellants submit therefore that Russell has nothing to do with "stopping emission" and "trapping heat" whereas the presently claimed invention provides that radiation exchange with a passenger is improved. The radiation is reflected towards the passenger. This is one of the objects of the present invention.

Claims 1, 18 and 20 require that the low emission coating is located on the inner surface of a structure facing the passenger. In contrast, Russell has a "low E" coating applied to the outside surface of an inner glass panel of a double glazing. If, in theory, the thermal control film is used for a single substrate it must be applied so that it allows transmittance through the film of a majority of the infrared radiation. This is precisely the opposite of the presently claimed invention.

As a result, the Russell reference teaches subject matter which is likely to lead one skilled in the art away from the present invention as the radiation exchange between an inner glass panel and an outer glass panel in Russell is suspended. Applicants have discussed a coated double-glazing structure at page 3 the second paragraph of the present application. The invention is not addressed to insulating against heat loss. According to the present invention the thermal radiation, which is different from the thermal conduction, is reflected by the "low E" coating. Thermal radiation does not lead to heating up of interior air. Exhibit A attached to the Response of September 22, 2004 illustrates the double pane structure used in Russell whose purpose is to insulate against loss of heat to prevent radiation from the inside to the outside.

Each of the secondary references to Allemand et al. U.S. Patent No. 6,178,034, Coleman U.S. Patent No. 4,731,289, Rensch U.S. Patent No. 6,092,915 and Yoneda U.S. Patent No. 5,976,702 add nothing towards meeting the claim limitations which define independent claims 1, 18 and 20 particularly with regard to the features discussed above which are lacking in the primary reference to Russell. It is submitted that there is no teaching from these references which could obviously be combined with Russell to meet the claim limitations of independent claims 1, 18 and 20, as presently constructed.

Claims 2-4

Claims 2-4 specify the coating (specification page 7, lines 18 and 19) which is separately patentable and is not shown by the references in combination with features of independent claim 1 even if the independent claims are assumed to be disclosed. Therefore, claims 2-4 are separately patentable.

Claims 5 and 6

These claims specify the thickness of the coating (specification paragraph bridging pages 7 and 8). The preferenced implementation of thickness is not disclosed by the references and is separately patentable based on the disclosed relationship between the thermal emission coefficient and the metal oxide layer thickness.

Claims 7-9

These claims specify the application to a window and the types of window materials (specification paragraph [0026]) which is not available from the references and is distinct from other parts of the aircraft.

Claims 10-12

These claims apply the coating to decorative plastic foils used in airplanes (specification paragraph [0027]) not shown by the references and distinct from other materials and portions of the airplane.

Claim 15

This claim provides the preferred range for thermal emissions factor (specification paragraph [0024]) not shown in the reference and not obvious even assuming the independent claims are disclosed.

Claims 2-12 and 16-17 depend from and contain all the limitations of the features of independent claim 1

APPENDIX

A copy of the claims on appeal is enclosed herewith.

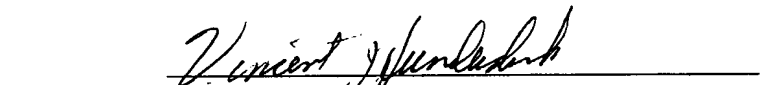
CONCLUSION

For these reasons, Applicants respectfully submit that the decision of the Examiner in finally rejecting claims 1-12 and 15-22 is erroneous and should be REVERSED.

The original Appeal Brief was accompanied by a check in the amount of $500.00, which was sufficient at the time in payment of the required appeal fee. This amount is believed to be correct, however, the Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account No. 05-1323, Docket No.: 101280.49983US. A triplicate copy of this Appeal Brief is attached.

Respectfully submitted,

April 8, 2005



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VJS:ddd
Enclosure

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APPENDIX

1. A method of improving thermal comfort in a passenger airplane, the airplane having a cabin with interior surfaces, the airplane cabin for transporting one or more passengers, the method comprising:

applying a heat-reflecting coating with a thermal emission coefficient no greater than approximately 0.5 to at least one interior surface of a cabin of a passenger airplane,

whereby the coating provides improved radiation exchange with a passenger in the airplane cabin when compared with an uncoated interior surface.

2. The method of claim 1, wherein the coating is a transparent conductive coating.

3. The method of claim 2, wherein the coating comprises a conductive metal oxide.

4. The method of claim 2, wherein the coating comprising indium tin oxide.

5. The method of claim 1, further comprising selecting a coating thickness to achieve a desired thermal emission coefficient for the coating.

6. The method according to claim 5, wherein the thickness of the coating, as applied, is less than 1 μm.

7. The method of claim 1, wherein the at least one interior surface of the airplane cabin comprises at least one window of transparent plastic material, and wherein the coating is applied to the at least one window.

8. The method of claim 7, wherein the at least one window comprises polymethylmethacrylate

9. The method of claim 7, wherein the at least one window comprises polycarbonate

10. The method of claim 1, wherein the at least one interior surface of the airplane cabin comprises decorative plastic foil, and wherein the coating is applied to the decorative plastic foil.

11. The method of claim 10, wherein the decorative plastic foil comprises polyvinylfluoride.

12. The method of claim 10, wherein the decorative plastic foil comprises polyvinylidenefluoride.

15. The method of claim 1, wherein the coating has a thermal emission factor selected from the range of 0.1 to 0.3 inclusive.

16. The method of claim 1, wherein the at least one interior surface of the airplane cabin is associated with a lateral covering part, and wherein the coating is applied to the lateral covering part.

17. The method of claim 1, wherein the at least one interior surface of the airplane cabin comprises airplane glazing, and wherein the coating is applied to the airplane glazing.

18. An airplane improved for thermal comfort, the improved airplane comprising:

an airplane comprising an airplane cabin having interior surfaces,

a heat-reflecting coating with a thermal emission coefficient no greater than approximately 0.5 on at least one of the interior surfaces,

whereby the coating provides improved radiation exchange with a passenger in the airplane cabin when compared with an uncoated airplane cabin.

19. The airplane of claim 18, wherein the coating is applied to interior cabin walls.

20. An airplane cabin part improved for thermal comfort, the improved part comprising:

a part for use in an airplane cabin having at least one surface which, when the part is installed in the airplane cabin, provides the at least one interior surfaces of the airplane cabin,

a heat-reflecting coating with a thermal emission coefficient no greater than approximately 0.5 applied to the surface,

whereby the coated surface, when the part is installed in the airplane cabin, provides improved radiation exchange with a passenger when compared with an uncoated surface.

21. The improved part of claim 20, wherein the part is an airplane window.

22. The improved part of claim 20, wherein the part is an interior cabin wall panel.